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ABSTRACT

The advantages of the 45-15 school schedule for students, teachers, and parents and for building economy are outlined. The model presented shows various constraints affecting the operation of a 45-15 schedule and suggests maxims to improve scheduling. Assorted schedule variations are explained in the text and illustrated in sketches. (Page 14 may reproduce poorly.) (RLF)

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A MODEL: 45-15

A SIMULATION NOTEBOOK

PRESENTED AT THE

6TH NATIONAL SEMINAR ON YEAR-ROUND EDUCATION

APRIL 30 - MAY 3, 1974

CHICAGO, ILLINOIS

by

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EA 006 099

Some Basic Ideas.

Many of the building investments made in the U. S. are much less than economical. It's an idea that we haven't thought much about. Church buildings with an expected life of 50-60 years may be used less than five hours a week. In Europe some such buildings are "permanent"--presently several hundred years old. Libraries in addition to warehousing books have a people capacity often greatly underused. Many homes, unoccupied during the day (occupants work or attend school) include a living room which is never used because the family room has replaced its function.

Schools which schedule a three month vacation are undoubtedly wasting a significant building investment. If we think only of building economy then night and weekend hours represent an additional "waste". The summer vacation is especially wasteful because few of the people involved really want or need three months off. Children who don't like school want to be off all the time. Most students like an occasional break but three months is too long. Parents are at some strain to keep younger children occupied for the whole summer. Teachers are seldom rich enough to travel or study every summer. Student summer jobs are important, but a relatively small percentage of students is involved and their needs can be met other ways. Disuse of school buildings then is especially wasteful in light of the inconvenience and misuse of human resources with which it is associated.

Teachers' careers can be improved by a schedule change. The nine month term is probably the worst possible schedule except the eight month, seven month, etc. A 45-15 assignment affords an agreeable mix of responsibility and days off. Teachers like it, except those who must find summer jobs to supplement their incomes. For them a twelve month assignment is desirable.

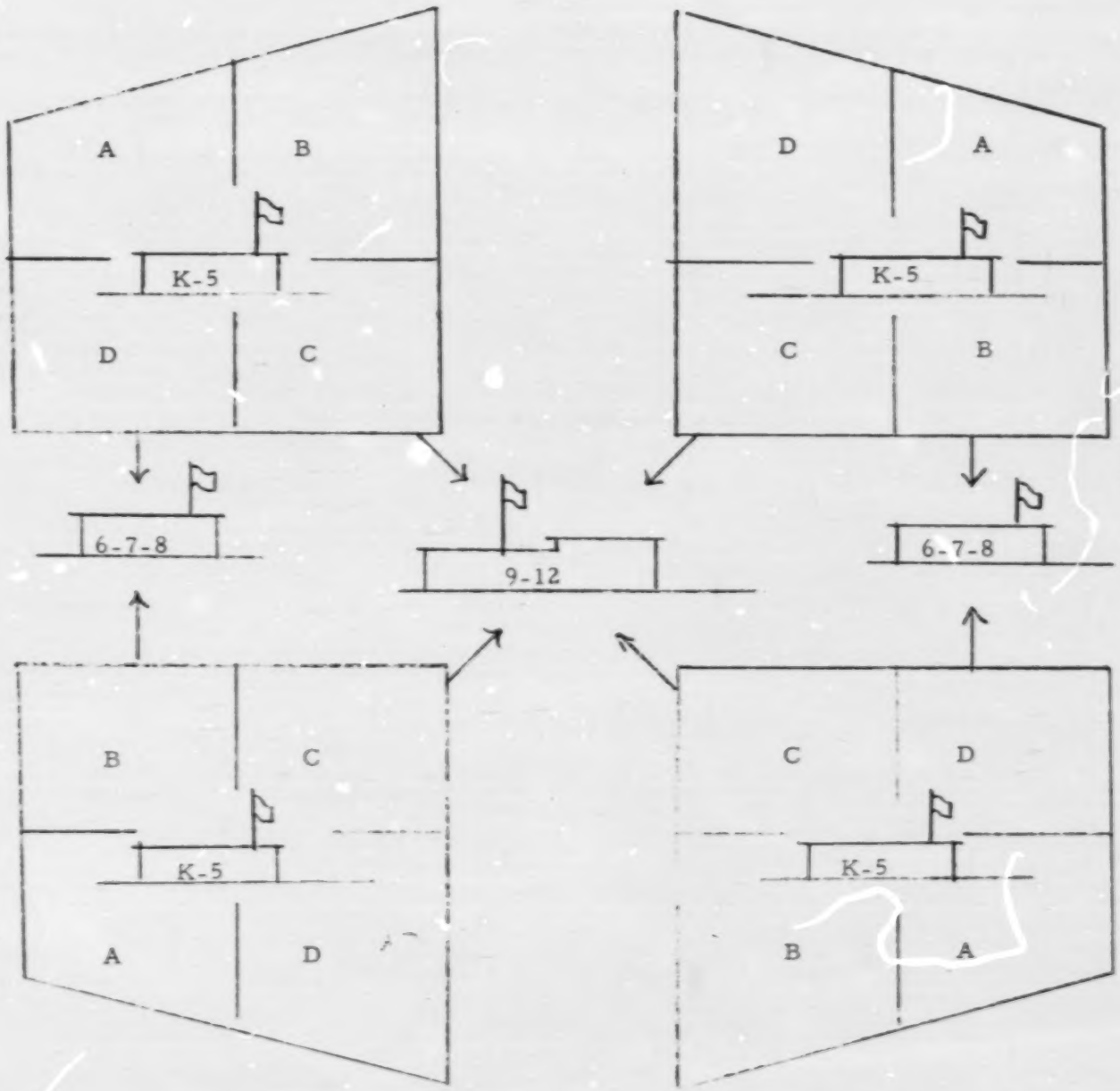
"But can teachers stand the strain of teaching twelve months?" Yes, the academic schedule is not rigorous. It requires 230-240 days of responsibility per year for a twelve month teacher. The 45-15 schedule can be an important opportunity for teachers to break up the year better or to move toward full earning potential and usefulness. A forty year career on the nine month schedule leaves the teacher on vacation ten years of the forty. If teachers can make an important contribution to our civilization, it is senseless to have them idle 25% of the time.

Perhaps schools can keep students eager for learning each day, but more often a few days off which break the routine tend to ease the problem of maintaining student interest. Principals report less student frustration, better discipline in 45-15 schools. Mothers report children ready and often anxious to return to school after a short vacation. Teachers feel that 45-15 schools reduce the need for student review. The beginning and ending of a nine month school term during which students are restless is eliminated. A three month student vacation has little to recommend it unless it can be largely filled with the social and recreational activities required for the healthy development of

children and youth. If all students are to have the same three month vacation from school then not only is the school space wasted, but community recreation facilities are doomed to nine months of idleness. It is therefore obvious that staggered use of school and community facilities allow an increased investment per child, hence improved services. Children exposed to the 45-15 school schedule and the 45-15 community recreation, Bible School, or intersession (mini-courses offered during the three week break) schedule would very likely be difficult to convert to the nine month schedule.

More specifically. Moving to 45-15 requires several decisions. First, children of a family, subdivision, or area must be on the same one of four schedules. It's no fun to have a break from school unless friends and neighbors are having a break also. Schedulers should resolve early that they will never give in to the temptation to separate families or neighborhoods by schedule. (A rare exception is the mother who requested that each of her four children be placed on a different schedule so she could have time with each one individually.) Second, one cycle (schedule) can be made up of several neighborhoods which are separated, but it is important to have balance among the cycles. Balance includes: 1) equal or near equal numbers of students per grade, 2)potential for equal enrollment growth or decline, 3) equal or similar economic distribution, 4) equal or similar IQ distribution, 5) equal or similar racial distribution, 6) etc. Transportation efficiency is important. A first step could be to divide the bus routes of elementary attendance areas into four parts. Supplement and balance cycles from this beginning. Figure 1 shows a K-12 theoretical approach.

FIGURE 1



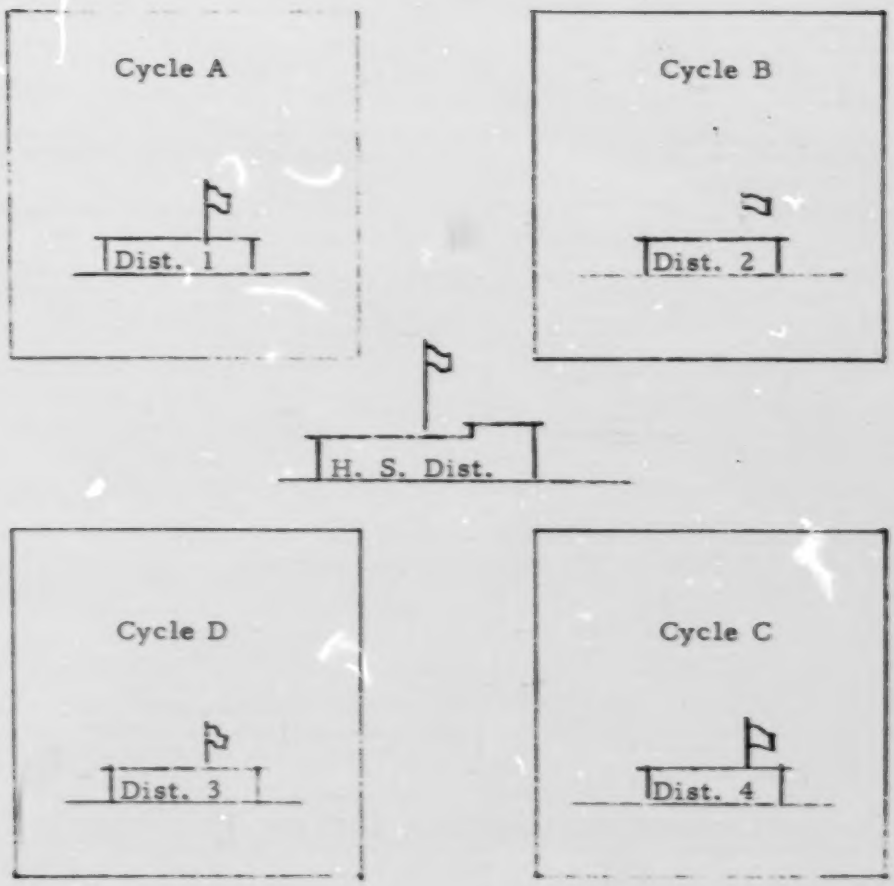
Keeping the secondary students on the nine month schedule while operating 45-15 in the elementary schools has not presented significant problems. In some cases however, many parents do prefer a single family schedule. Older children often seem to separate themselves from the family as much as possible, anyway.

If elementary districts having adequate space feed a crowded high school district, Figure 2 might be considered. Elementary districts could remain on the nine month schedule or they could adopt the schedule to which they are assigned in high school. For example, if the Cycle A schedule were adopted for an elementary district, schools would be open 45 days beginning in July, then closed 15 days, etc.

The number of days needed. The pure 45-15 schedule is disarmingly simple. Each cycle has 180 days in class and 60 days vacation. A 42-14 schedule or a 48-16 would work the same way, but many schools for one reason or another (some legal and some financial) require something other than 168, 180 or 192 day school years.

Teachers appreciate not beginning a new quarter on Friday. A quarter scheduled to end on a Monday is likely to be poorly attended. Teachers do not relish breaking a vacation with a professional meeting day which occurs several days after a quarter has ended or several days before a new quarter is to begin. As you can see, we have begun to develop a series of schedule constraints which will vary from district to district.

FIGURE 2


Cycle A
Dist. 1
Cycle B
Dist. 2
H. S. Dist.
Cycle D
Dist. 3
Cycle C
Dist. 4

1. Quarter cohesiveness. Don't begin on Friday, end on Monday, and dont plan a small number of days before or after a significant vacation, e.g. two days at the beginning of a quarter which fall just before Christmas vacation; or the two final days falling just after Christmas vacation.

2. Teacher professional meeting days should fall at the beginning or the end of a quarter.

3. Days on which only one or two cycles are in session are inefficient, therefore combinations of days in school and days on vacation must be selected carefully. It may be helpful to remember that each day with three groups in session accomplishes three-fourths of a school day, i.e. three-fourths of the students are scheduled to attend, one-fourth must be on vacation. Therefore, if we are to avoid days on which only one or two cycles are scheduled, then the number of days in a school year must be a multiple of three and vacation days per cycle must equal one for each three days in school. Such one or two cycle days may sometimes be used to good advantage as parent-teacher conference days, but they are generally inefficient because full services must be made available for a small group of students.

Intersessions. It is easy to see that a short vacation in each season of the year is better than one annual long one, it is perhaps even more obvious that some students would prefer no vacation at all. These students are challenged and interested by school activities and wish to continue them. Therefore, if a school has adequate space, staff, etc., intersessions (courses offered during 15 day student vacations) should be considered. If space is not available, the

FIGURE 3

45-15	42-14	48-16	43-14	42-14	44-14
45-15	42-14	48-16	44-15	43-14	44-15
45-15	42-14	48-16	43-14	43-14	44-15
45-15	42-14	48-16	44-15	43-15	45-15
180-60	168-56	192-64	174-58	171-57	177-59
240	224	256	232	228	236

time might be used for field trips or special sessions scheduled at the library, museum, swimming pool, or other community resources.

It may be possible to add a few of these vacationing students to music, art, and physical education classes in school. There should usually be other community and neighborhood activities available to out-of-school students. Some will want to work, and the school should help make work opportunities available. Careful school and community planning for student vacation days will yield great dividends in student growth.

Scheduling is a math problem. It is important to continue improving scheduling until all involved are convinced that the schedule is as good as it can be. If one and two cycle days are to be avoided, days in school must be multiples of three, vacation days must be one to each three days in school. However, your district may have a good use for one or two cycle days. It is generally educationally important to avoid beginning a quarter (segment) on a Friday or ending one on a Monday. It is generally bad to begin a quarter (segment) a few days before a significant vacation, or to end one a few days after. Teachers should not have scheduled duty days during their vacations. These guidelines are important if you plan to begin three cycles July 1st, and they are just as important if you plan a staggered beginning. They seem less important for the staggered beginning, but if the school days and vacation days are not balanced each year, trends of imbalance appear which will be troublesome over a long term.

The staggered start-end. The staggered beginning and ending probably require more changes, hence more planning than the three cycle start. Changes in the

financial flow for teachers' salaries will have to be considered. The staggered beginning requires a staggered ending. Will you graduate seniors two or four times or will you wait until all are finished to hold graduation exercises? The staggered schedule holds its own special problems for re-assigning pupils. Notice in Figure 4 that any cycle may be transferred down the schedule but no cycle may be moved up more than one cycle without omitting days in session. The move up one cycle omits the vacation and requires 90 days in school without a break. Can the school provide 1/3 services for the first three weeks and 2/3 services for the second three weeks while moving into the schedule? There is also a special problem concerning teachers' contracts or term of position. A teacher who is assigned to one cycle probably should be contracted for the four 45 day segments of that cycle. This, however, requires a maximum of 45 school days difference in the beginning and ending dates of some teachers. What shall be the effective date of salary increases? New fringes? Will statutes allow the district to contract teachers for days in more than one fiscal year? Some teachers may teach students from all four cycles. The staggered schedule will require such teachers to do one of the following: 1) not finish the year with some students, 2) teach 30 school days of a new school year for some students, or 3) gradually reduced daily load as the replacement teacher gradually assumes the position load--one cycle at a time (three weeks at 1/3 load and the next three weeks at 2/3 load).

FIGURE 4

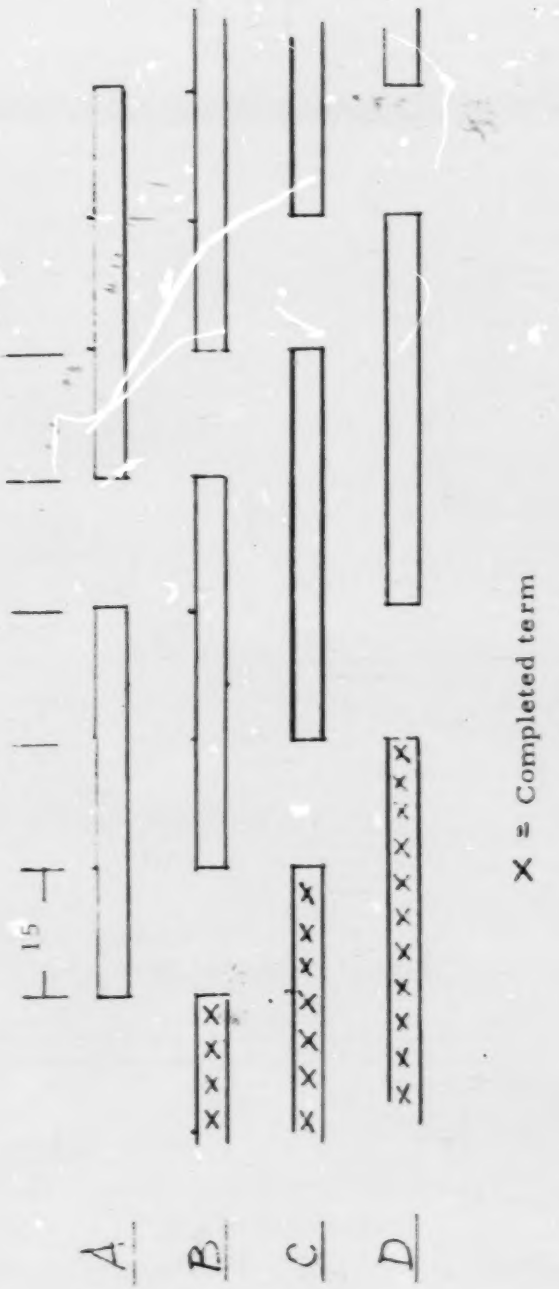
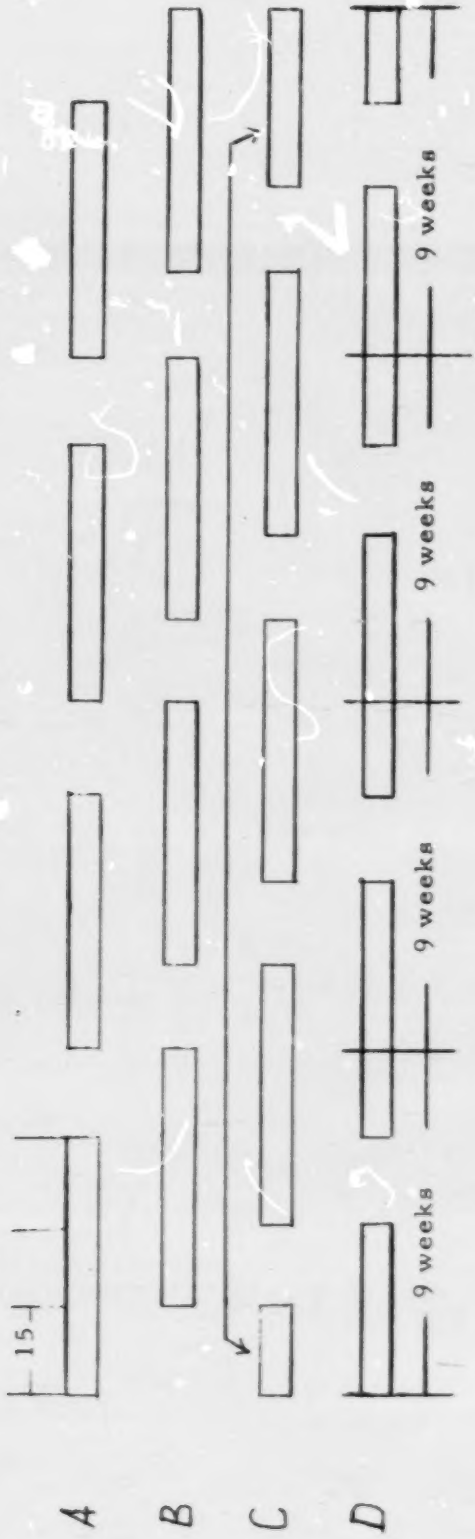


FIGURE 5



The three-cycle-start-end. The three-cycle-start-end requires short beginning and ending terms for two of the four cycles. There seems to be no reason this should effect the elementary program and perhaps not junior high or middle school, but it probably is unsuited for the high school curriculum. This problem is minimized if the high school is offering full year courses or semester courses, but it is significant if nine week courses are offered (Figure 5). Imagine beginning a nine week course in the first three weeks of "C" (July) and finishing the same course in the final six weeks (May-June). An alternative is to disregard vacations and change classes each nine weeks of school days as in "D", (Figure 5).

The three-cycle-start-end affords a clean-cut beginning and ending for annual records and reports. If the state requires attendance records, these may be kept without overlapping. The same is true of salaries and financial accounts. The staggered schedule finds "A" six weeks and "B" three weeks into a new term before "D" finishes the old one. The annual per student cost may be hopelessly obscured in staggered schedule schools. Bookkeepers and other record keepers will no doubt continue to prefer the three-cycle-start-end.

Scheduling teachers and classes. Cycle teachers work 45 days, then are off 15 days, four times to complete a year. They teach the same pupils for a year. An elementary school staffed by such teachers may (in most states) require the services of specialists (art, music, P.E., Special Education), and seldom are elementary schools large enough to require four of one particular type of specialist. Therefore, specialists in 45-15 are generally requested to teach twelve months, perhaps serving 1/3 more students than they would have on a nine month schedule. One school district scheduled four learning disabilities (LD)

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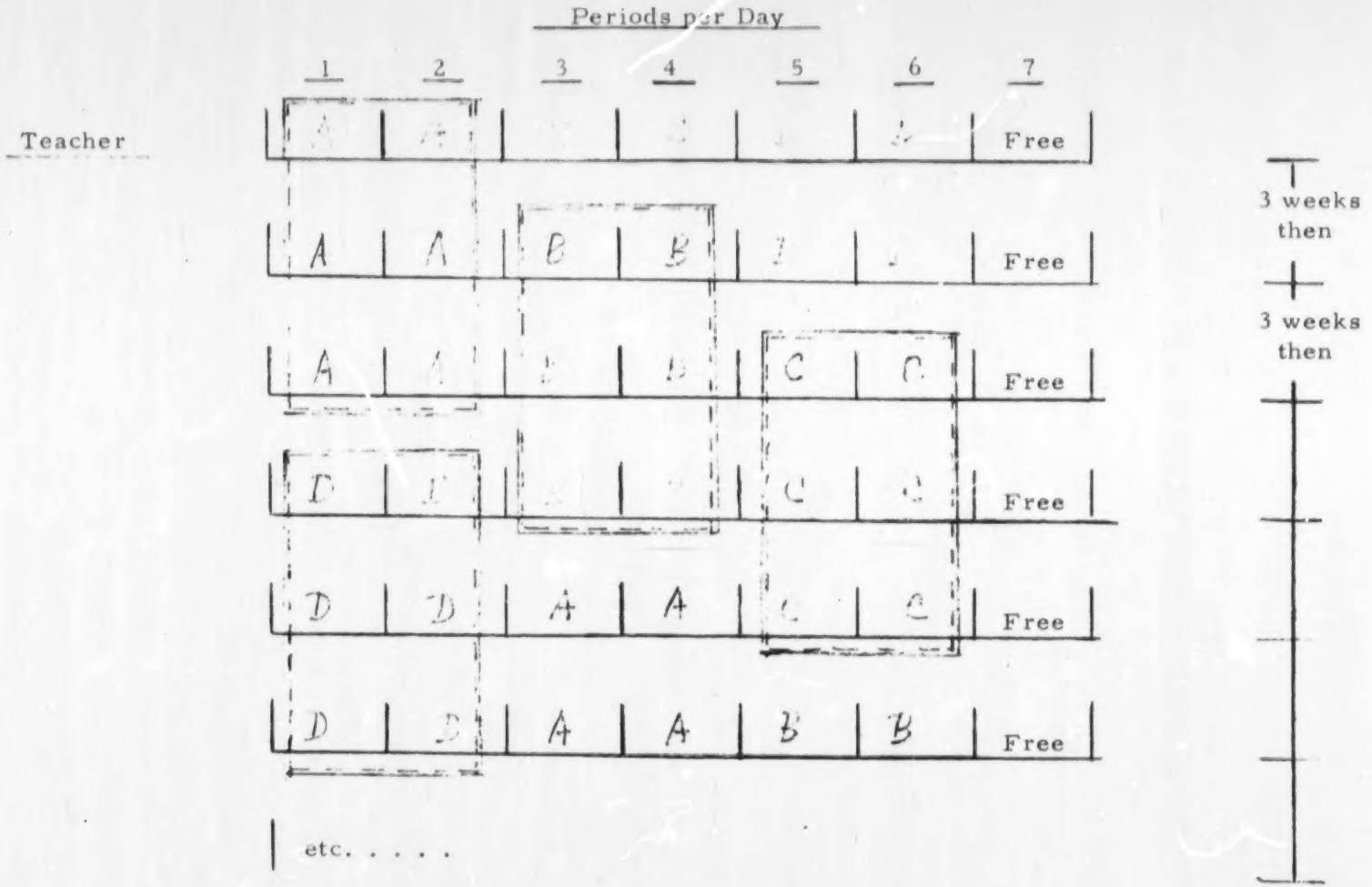

FIGURE 6

teachers as cycle teachers and employed a fifth person to fill the vacations of the other four. It didn't work. It perhaps could, but it didn't. Junior, middle, or high school cycle teachers require that each cycle enroll a full teaching assignment. If the school is large enough to employ four teachers of a particular subject or four matching combination teachers (i.e. math-science and English-social studies), then cycle assignments may be made. Cycle assignments are probably educationally superior to twelve month assignments if teachers can afford to work for the lesser number of days. Nine weeks of school followed by a three week break helps keep a person eager, energetic and fresh.

The twelve month teacher in an elementary school is typically a specialist or perhaps a member of a departmentalized staff. In middle, junior, or senior high (departmentalized elementary), the twelve month position is typically two sections of 'A', two sections of 'B', two sections of 'C', and two sections of 'D'; six of the eight at any one time (Figure 6). The departmentalized elementary schedule would likely be three blocks (one for each in-session cycle) in place of six classes, but the schedules would be very similar.

It is possible for three twelve-month elementary classroom teachers to assume the positions of four cycle teachers. (Figure 7) These three teachers must, however, change groups each nine weeks. This, as shown, is probably not a good practice. There may be variations which are acceptable.

FIGURE 7

Assignment of Teacher 1 (X)

Assignment of Teacher 2 (O)

Assignment of Teacher 3 (□)

It is not uncommon in 45-15 schools for a class (singleton) to enroll students from all cycles. There are at least two types of curricula which adapt well to the singleton. First, individualized instruction, which truly releases the individual student to travel through material appropriate to him (her) at a rate appropriate to her (him). Second, the ongoing curriculum in which 15 day units are taught, but not repeated during the year. Sixteen three-week units would be presented. Students of each cycle would be exposed to twelve of the sixteen. This should be possible in curricula such as art, music, and physical education, in which sequence and content can be relaxed. It can be argued that sequence is essential in these areas, but if the early grade instruction has been adequate, then relaxation should be possible by middle school age when the singleton approach is most needed.

Another valuable scheduling idea is the doubleton or bycycle class which enrolls students from two cycles (Figure 8). Note two similar patterns: AB; 3 weeks half class (A); 6 weeks full class (AB); 3 weeks half class (B); etc. Then there is AC; 3 weeks full class; 3 weeks half class (A); 3 weeks full class; 3 weeks half class (C);, etc. They each amount to twelve month teaching positions with students from two cycles in class together six months and in class separately three months each. Bycycle classes can be presented in twelve three-week non-duplicating units. However, sequencing, if necessary, can be troublesome. Recent studies of sequencing find it to be less important than once thought, but teachers must certainly be convinced of this before they can be expected to plan non-sequential courses.

FIGURE 8

Bycycle (Doubleton)

Another scheduling facet which should be noted concerns specialized courses. In middle schools and above, a class section number is generally assigned to a specialized course such as band. Band students would then be enrolled, e.g. A4, B4, C4, D4. Section four thus has one immovable period scheduled. Other classes will move from period to period as cycles come and go. Follow one teacher's schedule until it returns to the same order as it was on the opening days (Figure 9). If a teacher is to have the same group (section) each time they are in school, then that teacher must be assigned the same section numbers from each cycle.

Recycling. Regardless of the population of a 45-15 school, its cycles will eventually become out of balance and recycling will be necessary. The adjustments are not popular among parents: "Why didn't you do this to someone else, why me?" It is not unusual for districts to move students from one school to another as populations change and recycling is the same type of problem. It must be planned and explained carefully. Balance among cycles is important to the educational program as well as for the sake of economy. The solutions to this problem will be obvious to those who are responsible for solving it, but it is very important to examine the set of recycling problems and solutions at the time the schedule is adopted so that all publics involved will know something about what may happen as the population changes. No one likes bad news surprises that someone should have thought of earlier.

Emergency school closing days. Assuming that the schedule has been successfully prepared and reasonably well received by those who must use it, there often still must come the question of how to make up days missed.

FIGURE 9

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	1	2	3	4	5	6	7
1. 3 wks	A^2	A	C^2	C^3	D^2	D^3	Free
2. "	A	A	B	B	D	D	Free
3. "	A	A	B	B	C	C	Free
4. "	D	D	B	B	C	C	Free
5. "	D	D	A	A	C	C	Free
6. "	D	D	A	A	B	B	Free
7. "	C	C	A	A	B	B	Free
8. "	C	C	D	D	B	B	Free
9. "	C	C	D	D	A	A	Free
10. "	B	B	D	D	A	A	Free
11. "	B	B	D	D	A	A	Free
12. "	D	D	D	D	D	D	Free
Finally	A	A	D	D	D	D	Free

If there is an extra day at the end or in spring vacation which smoothly fits the same cycles which missed the day--it is indeed fortunate--but the odds are not in the scheduler's favor. Although laws may not require the same number of school days per year per student, it is the fair and proper way. Schedulers who do not insist on equal days are not meeting their responsibility. Figure 10 illustrates one method which can be varied to adjust most missed days. It suggests moving each beginning and ending date (between the day missed and the makeup day) one school day later. As pointed out earlier, variations of this may be necessary or desirable.

In closing. A computer programmer was asked to build a 45-15 junior high schedule with a few constraints such as: band and chorus singletons; sections return to the same teachers after vacations. He said, "It can't be done."

It can be done. It and much more has been done. Schedulers should share their discoveries with each other. A few hints and some drawing board experience should dispell even the foggiest of notions.

FIGURE 10